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ABSTRACT

A teacher training model in which microcomputers are integrated into the classroom using a learning center format is described. The rationale for the Computer Learning Center (CLC) Training Model, which was developed for use with Head Start teachers without prior microcomputer experience, is based on an understanding of the characteristics of the learner and on the premise that, for young children, computers need to be available in the classroom. The training model was tested in 10 sites across the United States. Software used in the Head Start classrooms was operated through a unique standard interface called KidsWay, which allows children and teachers to access and explore computer programs via icons and without dealing with DOS commands. Ways to integrate the CLC into the curriculum are discussed, as is software evaluation. The model includes a 2-day introductory workshop, follow-up clinical supervision, additional support strategies, and periodic evaluation by the teachers and trainers. A workshop agenda, teacher's bill of rights, and monthly report format are appended. Contains 14 references. (LB)

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A Developmental Approach to Teacher Training

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Abstract

This paper describes a teacher training model in which microcomputers are integrated into the classroom using a learning center format. The rationale is based on an understanding of the characteristics of the learner. The discussion focuses on a teacher training model developed and tested in ten sites across the United States. The model includes a two day introductory workshop, follow up clinical supervision, additional support strategies, and periodic evaluation by the teachers and the trainers.

Key Words: Teacher Training Model, Developmental Teacher Education, Microcomputer Education, Young Children

Introduction

Teachers view technology through a kaleidoscope of past experiences that highlight or distort their perceptions. Teachers' first perceptions of the microcomputer with its extensive set of peripherals may be as a multifaceted tool to enhance their repertoire or as a complex, unfriendly machine threatening their competence. Since many of our current teachers have not used the microcomputer as students, the issue we must address is, what kind of introduction will empower these teachers to use the microcomputer as a creative tool for themselves and their children. How can they develop the understanding needed to design learning experiences for the children they teach when they themselves did not use the microcomputer as early learners?

Historically, the 1980s were a time for debating this question from the perspective, "What is computer literacy and

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how can it be best taught?" Workshops, courses, and text books focused on defining new terms, (ie. disc, hardware, ascii code), understanding computer modes (tutor, tool, tutee), and learning computer languages (Basic, Logo, Pascal). As it became apparent that classroom teachers did not necessarily need to learn a programming language, computer educators turned their attention to courses on software evaluation and ways to integrate the computer into the curriculum.

Experience has made it increasingly clear that the success of this new medium depends upon the teachers' attitudes and approaches to the computer and their desire to extend the curriculum (Campbell and Schwartz, 1986). Urging teachers to become proactive, determining what could and should be, assumes that the teachers have received sufficient training to move from self-directed concerns, such as attention to personal ability to operate the microcomputer, to task and impact directed concerns such as relating the computer to the classroom environment and exploring the benefits (Hall et al, 1979; Heller, R. & Martin, D., 1987; Ackerman, 1989).

Computer Learning Center Training Model

The Computer Learning Center Training Model (CLC T aining Model) was developed for use with Head Start teachers, many of whom did not have any previous experience with the microcomputer. It focuses on teachers' concerns and scaffolds them in their adoption of this innovation. The model is based on the premise that for young children, computers need to be available in the classroom. Access to the computer learning center then corresponds to the access provided to any other learning center in the classroom. Computers can become an integral part of the every day curriculum, not an extraordinary event that happens occasionally in a lab setting. (Wright & Thouvenelle, 1989; Davidson, 1989).

The CLC Training Model begins with an introductory "warm up" activity designed to ascertain the experience level of the teachers by exploring how they describe their use of "technology". Technology is very broadly defined, ie. "can you set up your videotape player to record the soccer game or do your children help you?" During the introduction, participants are encouraged to share their expertise with any kind of technology from microwave ovens to answering machines. The participants' evaluation comments on this introduction are typically, "Our minds were set at ease"; "not intimidating"; "it was a relaxed and very effective opener." This introductory activity is followed by an overview of the two day workshop (See Appendix A for Workshop Outline).

Establishing a Developmental Perspective

Developmental teacher education proponents assert that a strong understanding of how children develop and learn constitutes a kind of professional expertise that enables teachers to make well informed decisions about curriculum and instruction. (Black & Ammon, 1990). Once teachers understand the constructive process through which the child acquires knowledge, they can understand the levels of children's thinking in various subject areas. Then teachers can provide the kinds of instructional activities that lead children to construct higher levels of understanding.

In order to set the stage for a child centered approach to computer usage, the second component of this teacher training model employs a slide show. This slide presentation portrays the hierarchical stages of understanding young children move through as they develop their command of the microcomputer.

Stages of Understanding

Discovery:	growing awareness that what appears on the screen is what I created or decided
Involvement:	motivation to achieve mastery of basic commands and sequences
Self-confidence:	ability to execute a plan and predict outcomes
Creativity:	invention of solutions and design of challenges for others

(Wright, 1984)

Educational theories and research findings are used to relate learning styles observed at the microcomputer to basic knowledge regarding children's stages of development and learning styles. The slide presentation is highlighted by anecdotes of children interacting with computer programs. These anecdotes portray the four stages of understanding that children demonstrate in their experiences with the microcomputer. Participant evaluations of the session reflect the importance of this component: "I really got a feel for the computers in the classroom"; "Stories about the children's experiences helped me understand how computers can be appropriate in the classroom".

Teachers have a wealth of knowledge of how young children learn. They can contribute a great deal to a discussion of young children's learning styles. It is important to convey to teachers that they bring their years of expertise as classroom teachers to the development of this new learning center.

Initiating the Knowledge Building Process

Current theories of teacher education focus not only on how

the young child constructs knowledge, but also on how teachers construct their own knowledge. There is growing concern that teachers derive their values and model their own practice on the methods used to teach them when they were young (Fosnot, 1989; Ross, 1990). Researchers report that the lecture/discussion format is by far the dominant teaching modality employed by teacher educators as well as classroom teachers (Howey, 1983). Because of this identification with personal experiences, good teaching can quickly become equated with clear, directive communication rather than the facilitation of learner-centered inquiry and investigation (Fosnot, 1989).

To counteract the "dispensing of information" phenomenon, teacher educators are designing new programs for teacher candidates. The principle behind these designs is:

> rather than dispensing a list of prescribed methods of instruction to preservice teachers for their use, these teacher candidates themselves need to be immersed in an environment where they are engaged in questioning, hypothesizing, investigating, imagining, and debating.
>
> Fosnot, 1989, p.21

This same principle can guide the way in which preservice and inservice teachers are introduced to an innovation like the microcomputer. Indeed, it is exciting to see teachers build their knowledge of the microcomputer! In the CLC Model, teachers see an informal demonstration of how to assemble the computer and its peripherals. Then they work in teams putting their own computers together. By assembling and disassembling the parts of the computer, the teachers feel increasingly competent to work with the technology. They understand how to check for loose attachments and begin to functionally identify the various parts. With this hands-on experience, they will be able to move their computer learning centers around their classrooms as they wish. They learn to attach the mouse, the printer, the surge protector etc. consulting the assembled model as needed. Once they have a cursor on the screen, they are ready to investigate the potential of this new tool.

Empowering the Teacher

The software used in the Head Start classrooms is operated through a unique standard interface called KidsWay (1989). This interface allows children and teachers to access and explore computer programs without dealing with DOS commands. Teachers sign themselves and their children on by choosing a personal icon. This icon gives them access to a series of age appropriate programs, each represented pictorially and accessed with a mouse click.

At this point in the training, teachers are encouraged to proceed at their own pace using "quick starts" (summaries of the main commands needed). This open ended workshop climate significantly effects the receptivity of the adult learner. The teachers explore several programs until they find one that really engages them. For some, it is a drawing program, for others an adventure game or problem solving puzzle. Experience has taught us to allow the teachers' individual learning styles to emerge during this section of the workshop. The workshop leaders model a facilitative approach. It is hoped that the teachers taught microcomputer use in this way will adopt this same approach in working with the children.

A broader issue to bear in mind is that teachers have rights. The "Teachers' Bill of Rights" (see Appendix B) is an effort to remind all of us that no amount of appropriate hardware, software, and teacher training will produce a meaningful learning environment for children unless the teacher has willingly incorporated the microcomputer into her repertoire of teaching techniques with enthusiasm and commitment. Too often, innovations are commitments of the superintendent or the principal rather than the classroom teacher.

Selecting Software for Active Learning

Once the workshop participants have explored some of the software, they are in an excellent position to begin analyzing their experiences and developing a sense of software selection criteria. It is possible to model the evaluation of a program for the group, but this activity places the participants in a passive role. If our goal is to have the teachers construct their knowledge of this innovation, then it is appropriate that we encourage them to develop a list of criteria. An alternative technique is to present a tentative list of criteria; then ask the teachers to provide examples that illustrate these criteria from their experiences using the programs.

It is not unusual to have teachers engage in lively debates about the worth of a piece of software. Often these debates highlight some very different philosophical approaches or teaching styles. Discussions can move to a higher level when teachers begin a "wish list" of additional things they would like to have the program do. Generating new possibilities may seem pointless since software publishers are not likely to rewrite the program any time soon. However, this kind of thinking is precisely what we want the teachers to do. It is a way of taking command of the learning potential of the microcomputer.

Teachers should be encouraged to write their suggestions to the software publishers. Placed in the role of advocating

for quality software, teachers forget that they are novice computer users and take on their professional role as experts who understand how to support young children's learning. Teachers who think in terms of new ways to redesign the software are well on their way to integrating the computer learning center into their curricula. They are ready to take charge of this new component and envision how their children can benefit from it.

Integrating the CLC into the Curriculum

In the next phase of the training, teachers form teams and choose the first piece of software they will introduce to their children. Each group brainstorms how they will structure introducing the software to their children. The teachers design a lesson plan that involves a variety of learning centers. Often, teachers choose a piece of software that relates to a theme they enjoy teaching.

Teachers report that in the past they have ordered and used software they knew was mediocre because "it fit with the theme I was doing". As the availability of quality software increases, this issue should resolve itself. Until then, it is important to show teachers how to adapt writing and drawing tools to compliment various themes. In this way they can avoid the frustration of using substandard programs.

Exploration begins during the workshop, but for novice computer users, it is important to allow enough additional time for the teacher to "bond" with the computer before she or he takes it into the classroom. It interests us as trainers that teachers and directors look very surprised and relieved when we recommend more time for teachers to use the machines before setting up the computer learning center. The basic issue is again one of teachers' rights. The teachers need to decide when they are ready to introduce the computers into the classroom.

Researchers report that teachers who are not at ease with the microcomputer model computer anxiety. This modeling creates increased anxiety among the children who are then less willing to use the computer technology (Brownell, 1987, Bracey, 1988). Recognizing the teachers' need for comfort, some directors encourage the teachers to take the machines home for a week or two. Other schools place the computers in the teachers' lounge for the first few weeks. When teachers feel in charge of the technology, then they will be comfortable in effectively using the computers with young children.

Supporting the Introduction of the Innovation

An important component of the CLC model is the assignment

of a site liaison to each school. This person may be an educator from a nearby college or school district, or a teacher trainer from MOBIUS, the designers of the KIDWARE Curriculum. The frequency of site visits by site liaisons varies. For a novice teacher, the first month may include weekly visits. A hot line for telephone trouble shooting is also available so that trainers can be consulted as problems arise. Site visits continue throughout the year, biweekly for the first three months and then on a monthly basis. If a school has a "resident expert" or a media coordinator who is able to help teachers new to the use of computers in the classroom, visits can be less frequent.

There are many insights into effective teaching strategies which are best learned over time. On-site follow up visits offer a valuable opportunity for teachers and trainers to exchange new ideas and problem solve together. Observation of the children by the site liaison and the teacher provides valuable opportunities to point out examples of children moving from one stage to the next.

Children who are given the freedom to construct their own knowledge view the microcomputer as a tool they command. When assembling the body parts of a costume program, one child commented, "oh no, computer! I fooled you! You think I'm making a pirate but I'm going to change the parts around . I'm making a witch!" Another child announced that she didn't create her faces "in order". She liked to skip around on the menu putting parts on in a different order each time. Sequencing is a valuable skill but the power to create a new sequence is more valuable. Fortunately the programmer had allowed for this kind of innovative input and the teacher had respected the child's sense of autonomy. As teacher trainers, it is important to allow similar spontaneity in teacher responses as they develop their perceptions of how to implement the new learning center.

A popular feature of the CLC training model is the follow-up workshop in which teachers from several sites come together to share their experiences - highlights and concerns, new ideas for implementing programs, stories of discoveries they and their children have made, and new software they have found. Teachers note that conducting training and follow-up workshops off-site gives a clear message that the training is important enough not to be interrupted by classroom responsibilities.

Assessment as a Team Effort

A developmental teacher training model addresses the issue of software evaluation by focusing the teacher's attention on observation of the children's learning processes. Monthly visits allow the site liaison and the teacher to share

reflections. One site liaison recorded the following observation:

Alice, whose computer background was as a data processor, taught her four year old children how to operate eleven programs in four months. Several children knew the procedures for starting each program and printing a product, and could do so in rapid sequence. But what they created were simple, unimaginative pictures. They had moved to stage three (self-confidence) but had never had the opportunity to reach stage four (creativity).

I shared with Alice that good computer programs are like good picture books. Each time you go back to them you understand them better and use them in different ways.

I think some beginning teachers need help in understanding not to move on too quickly. They have been conditioned by our educational system to be sure to cover a specific amount of material in a given amount of time.

Margie, who hasn't used the computer before is such a keen observer of children. She's only introduced three programs the first four months. Her children delight in trying every possibility in each program.

The monthly reports of the site liaisons combined with the monthly reports of the teachers (See Appendix C) reveal the emergence of a dynamic computer learning center.

In addition to their monthly reports, teachers use a software evaluation form that included the following items:

1. Does this software offer your children
   a. a chance to create something unique?
   b. opportunities to problem solve?
   c. experiences that enhance self esteem?
   d. an introduction to new skills and concepts?
2. Was this software most appropriate for one child, two children, a group of children, or an adult and a group of children?
3. Was the information accurate and age appropriate?
4. Did this software relate to and enhance the content of your curriculum?
5. Do you or the children have suggestions about ways to improve the software or new ways to use the software in your curriculum?

Adaptation of the Model

The initial implementation of the CLC Training model was a part of the Head Start/IBM Partnership Project and focused on integrating the computer learning center into the curriculum being used by each center. More recently, the training model has been adapted for use with after-school projects, summer camps, and day care centers as part of a Work/Family

Directions/IBM Partnership. The differences in settings and their purposes required modifications. In the case of after-school programs, the focus shifted from curriculum integration to implementation of cooperative learning techniques which promote group use of the microcomputer. Day care directors explored how to share this new activity with parents. Techniques considered included parents as volunteers on special projects, Saturday or evening open houses for parents to preview software, and a library of books created by the children using the computer that could be checked out for home reading. In each case, the basic training principle remained one of involving the teachers in building their own knowledge base.

Conclusion

As we continue to search for better ways to support teachers, we may find it helpful to remember our goal: to create an environment in which teachers can build their knowledge about the power of the microcomputer and develop a vision of what this tool can mean to them and their children. Only then can we help them translate that vision into action.

REFERENCES

Ackerman, S.S. (1989). Concerns of early childhood educators about computers: Implications for teacher training. A Field Study Report, San Francisco State University, San Francisco, CA.

Black, A. & Ammon, P. (1990). Developmental teacher education. The Educator, Summer issue. Berkeley, CA: University of California.

Bracey, G. (1988).Still anxiety among educators over computers. Electronic Learning, 3, 20.

Brownell, G. (1988). Computers and teaching. New York: West Publishing.

Campbell, P.F. & Schwartz, S.S. (1986). Microcomputers in the preschool: Children, parents, and teachers. In Campbell, P.F. & Fein, G.G. Young Children and Microcomputers. Englewood Cliffs, N.J.: Prentice-Hall Inc.

Clements, D. (1987). Computers and young children: A review of research. Young Children, 43, 1, 34-44.

Davidson, J.I. (1989) Children and computers together in the early childhood classroom. Albany, N.Y.: Delmar Publishers, Inc.

Fosnot, C.T. (1989). Enquiring Teachers, Enquiring Learners. N.Y.: Teachers College Press.

Hall, G.E., George, A.A., and Rutherford, W.L. (1979). Measuring stages of concern about the innovation: a manual for use of the SoC questionnaire. Research and Development Center for Teacher Education, University of Texas at Austin.

Heller, R.S. & Martin, C.D. (1987). Measuring the levels of teacher concerns over microcomputers in instruction. Education and Computing, 3, 3/4, 133-139.

Howey, K.R. (1983). Teacher education: An overview. In Howey, K.R. & Gardner, W.E. (Eds.), The education of teachers: A look ahead. New York: Longman.

Ross, D.D., Johnson, M. & Smith, W. (1990, April). Developing a PROfessional TEACHer at the University of Florida. Paper presented at the annual meeting of the American Educational Research Association, Chicago, Illinois.

Wright, J.L. (1984). Informatics in the education of the young child. In Lovis, F.B. & Tagg, E.D. (Eds). Informatics and Teacher Training. North Holland: Elsevier Press, 67-72.

Wright, J. & Thouvenelle, S. (1989). Computer Learning Center Curriculum Guide for Teachers of Young Children. Alexandria, VA: MOBIUS Corp.

Appendix A

Computer Learning Center Teacher Training Workshop

Introductions and Warm Up

Overview of Training

Computers in the Early Childhood Classroom:

- A Developmental Perspective
- Children's Stages of Understanding

Hands-on Introduction to Hardware and Software

The Learning Center Approach

- Characteristics of developmentally appropriate programs

Integrating the Computer Learning Center into the Curriculum

On Site Support

- Hot Line/ Technical Support/ Software Updates
- Clinical Supervision by Site Liaisons

Assessment by Teachers and Site Liaisons

Evaluation of the Workshop

Appendix B

A TEACHER'S BILL OF RIGHTS

1. To choose whether an innovation will become part of the classroom.
2. To be introduced to the innovation through site observations,
   demonstrations, or video presentations.
3. To participate in the decision making related to acquiring equipment and materials needed to implement the innovation.
4. To receive hands-on training and sufficient time for individual exploration.
5. To receive on=going support and technical assistance that will lead to self-confidence in using the technology.
6. To be offered opportunities to preview and then select quality software that supports developmentally appropriate practice. Such software includes:

   * Authentic representation of the child's environment with aesthetically pleasing graphics.
   * Affirmation of diverse cultural and ethnic backgrounds

   * Clear instructions with high quality digitized voice support
   * Ease of operations allowing the child to focus on the purpose of the program.
   * Opportunity for developing creative thinking and problem solving skills.
   * Potential for integration into the classroom curriculum.
7. To be part of a group support structure which provides sharing of ideas and problems.
8. To be encouraged to try new ways of implementing the innovation.
9. To have fun!

Appendix C

Monthly Reporting Format

In preparing a summary of monthly activities related to the Computer Learning Center, it would be helpful to have comments from the classroom staff, parents and volunteers who are involved in the center.

1. What computer activities were particularly successful? Please name the software involved and how it was used.

2. Were there some computer activities that were not as successful? Describe the situation. Based upon your experience, how would you change the situation?

3. Did you use teaching techniques that were helpful that you would like to pass on to others?

4. What is the most important thing you have learned from working with the Computer Learning Center in your classroom this month?

5. Are there any other software packages or other kinds of peripheral devices that you would be interested in trying? Please describe.

6. Have you identified any new resources you would like to share with others-- for classroom staff? for children? for parents?

7. What additional kind of training, support, or technical assistance would help you more fully integrate computer technology into your classroom? Do you feel that you are currently using this interest area adequately?

8. Did you have volunteers or parents new to the Computer Learning Center this month?
   If so, what strategies did you use to help them become familiar with the Computer Learing Center?

9. Are there concerns that you would like to discuss with others at a follow-up meeting?